

Operation Manual

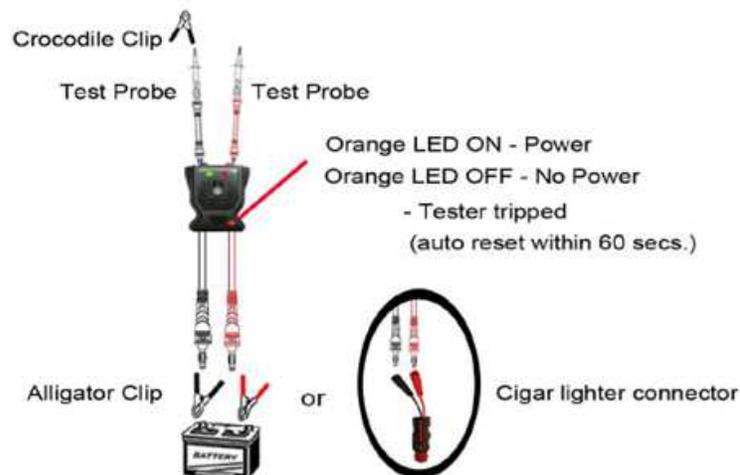
12V - 24V Function Tester

This function tester is designed to provide the following usage:

1. Polarity Test
2. Conductivity Test
3. Components activation when they were removed from the vehicle using positive (+).
4. Components activation with positive (+) supply only.
5. Components activation with negative (-) supply only.
6. Trailer Light Test.

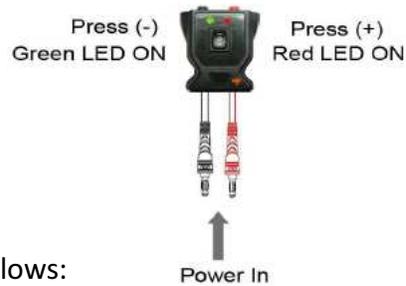
Initial Setup:

The Function tester needs to be powered up before use. Connect the positive (+) input to the battery positive (+) terminal. Then connect the negative (-) input to either the car chassis ground, battery (-) terminal or by cigar lighter connector as shown below. The top red banana socket is connected to an extension cable with the test probe or piercing probe. (Note: This end can be also connected using the wide selection of terminals from Auto Test Aids to suit your requirements.) Once the tester is hookup to the battery power, the power (orange) LED will light up.



Self Test:

When power is attached to the Tester, the power (orange) LED will light up. Now test and confirm it is working correctly.



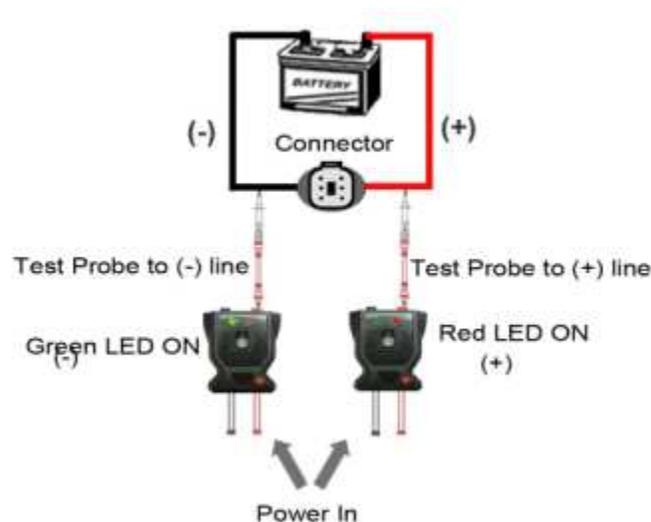
The good working conditions should be as follows:

1. Red LED will light up when the switch button is pushed forward (towards (+) positive).
2. Green LED will light up when the switch button is pushed backward. (towards (-) negative).
3. Then attach the red test probe to the red banana socket. Without pressing the switch button, use the red test probe to touch the black banana socket, the green LED will light up.

1. Polarity Test: (Without pressing any switch on the tester).

When using this test, just attach the red test probe to the red banana socket. Then apply power up the Tester as shown in initial setup procedure, when it is powered up the Power (orange) LED will light up and it is ready to test.

To test the polarity of an unknown wire from the running circuit, the tip of probe must be in contact with the wire. If the wire is positive pole, the red LED will light up. When the wire is negative pole, the green LED will light up. In situation when both the LEDs do not light up, the circuit is opened.



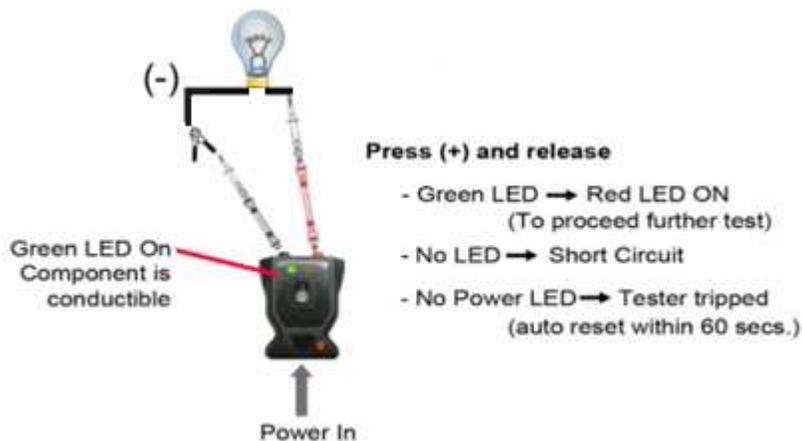
2. Conductivity Test: (Without pressing any switch on the tester).

This test will indicate the conductivity of the wires or components when it is disconnected from the electrical system. To do this, plug in the black cable with a crocodile clip to black banana socket of the tester and clamp the crocodile clip to one end of the cable or terminal and use the probe tip to contact the other end. The green LED will light up when there is conductivity. If it did not light up then there is an open circuit or high resistance.



3. Electrical Components activation when they were removed from the vehicle: (Using positive supply).

This function can be used to test the functionality of light bulbs, radiator fans, cooling fans, air- cond. magnetic clutch, fuel pumps, blowers, solenoids, etc. after it has been removed from the vehicle by supplying positive power supply to activate it.



Procedures:

1. Power up the Function Tester. The power (orange) LED will light up.
2. Plug in the black cable with a crocodile clip to black banana socket and clamp the crocodile clip to the negative side of the component.
3. Contact the tester probe tip to the positive side of the component. The green LED should light up. This shows that the component circuit is okay.
4. When the green LED is still lighting up, push the switch forward (+) and then release it quickly. (Note: This will activate the device momentarily when the switch is pushed and released).
5. During this action, notice if the green LED turns OFF and the red LED turns ON, and if it does then further testing can be continued.
6. If the green LED turns OFF and the red LED does not turn ON or the Power (orange) LED has also turns OFF, it means that the circuit is overloaded and the circuit has been cut OFF by the circuit protector.

This may due to the following reasons:

- a) The component being tested has a short circuit or it has been connected to ground directly.
- b) The component has high current ratings.

Note: The circuit protector has a shelf recovery feature that it will auto reset within 60 seconds. Once reset, the power (orange) LED will light up again.

4. Electrical Components activation while it is still fixed in the vehicle. (Using Positive supply).

This test can be conducted by applying positive voltage to the components directly while still attached to the vehicle but before doing so, first you have to disable the power in at the electrical component by disconnecting the connecting plug.



Procedures:

1. Power up the Function Tester. The power (orange) LED will light up.
2. Make sure the power from the vehicle to the component is disconnected.
3. Contact the tester probe tip to the positive side of the component. The green LED should light up. This shows that the component circuit is okay.
4. When the green LED is still lighting up, push the switch forward (+) and then release it quickly. (Note: This will activate the device momentarily when the switch is pushed and released).
5. During this action, notice if the green LED turns OFF and the red LED turns ON, and if it does then further testing can be continued.
6. If the green LED turns OFF and the red LED does not turn ON or the Power (orange) LED has also turns OFF, it means that the circuit is overloaded and the circuit has been cut OFF by the circuit protector.
This may due to the following reasons:
 - c) The component being tested has a short circuit or it has been connected to ground directly.
 - d) The component has high current ratings.

Note: The circuit protector has a shelf recovery feature that it will auto reset within 60 seconds. Once reset, the power (orange) LED will light up again.

CAUTION:

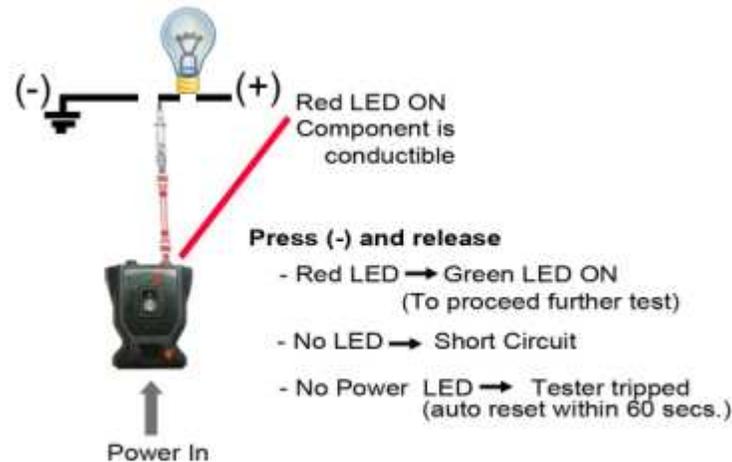
Please operate this function with the aid of schematic diagrams and correct testing procedures because applying voltage directly may arbitrarily cause damage to the components. USE probe with tip to apply voltage which can be helpful when diagnosing the components.

Important:

To prolong the life of the switch, please push the switch forward (+) first before contact with the component. In this case the arcing will take place between the tip and the components instead of the switch inside.

5. Electrical Components activation while it is still fixed in the vehicle. (Using Negative supply).

Apart from applying positive voltage to activate the electrical component while still fixed in the vehicle, the tester can also provide negative voltage too. In this case, the negative supply to the electrical component needs to be disconnected first and then proceed as follows:



Procedures:

1. Power up the Function Tester. The power (orange) LED will light up.
2. Make sure the negative supply from the vehicle to the component is disconnected.
3. Contact the tester probe tip to the negative side of the component. The green LED should light up. This shows that the component circuit is okay.
4. When the red LED is still lighting up, push the switch backward (-) and then release it quickly. (Note: This will activate the device momentarily when the switch is pushed and released).
5. During this action, notice if the red LED turns OFF and green LED turns ON, and if it does then further testing can be continued.
6. If the red LED turns OFF and the green LED does not turn ON or the Power (orange) LED has also turns OFF, it means that the circuit is overloaded and the circuit has been cut OFF by the circuit protector.
This may due to the following reasons:
 - e) The component being tested has a short circuit or it has been connected to positive directly.
 - f) The component has high current ratings.

Note: The circuit protector has a self recovery feature that it will auto reset within 60 seconds. Once reset, the power (orange) LED will light up again.

CAUTION:

Please operate this function with the aid of schematic diagrams and correct testing procedures because applying voltage directly may arbitrarily cause damage to the components. USE probe with tip to apply voltage which can be helpful when diagnosing the components.

6. Trailer Light Test:

This test allows us to check and verify the lighting polarity contact terminals orientation inside the connector. To do this, first disconnect the connector to the light.

1. Power up the Function Tester. The power (orange) LED will light up.
2. Plug in the black cable with a crocodile clip to black banana socket of the Function tester and clamp the crocodile clip to the trailer chassis ground.
3. Probe the tester tip at the trailer lighting connector terminals and push the switch forward (+) to apply voltage to them. This will allow checking of the lights orientation and functionality of the connector. If the power (orange) LED switch OFF then it must be the negative (-) ground. Wait for the fuse to reset. Once it had reset the power (orange) LED will light up again. Proceed with the test.

